

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
8 August 2002 (08.08.2002)

PCT

(10) International Publication Number  
**WO 02/061052 A2**

- (51) International Patent Classification<sup>7</sup>: **C12N 5/00**
- (21) International Application Number: **PCT/DK02/00065**
- (22) International Filing Date: **29 January 2002 (29.01.2002)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
PA 2001 00162 31 January 2001 (31.01.2001) **DK**

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(81) Designated States (national): **AE, AG, AL, AM, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), DE (utility model), DK (utility model), DM, DZ, EC, EE (utility model), ES, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.**

(84) Designated States (regional): **ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **AN IMPROVED *IN VITRO* METHOD OF CULTURING MAMMALIAN CELLS FOR AUTOLOGOUS CELL IMPLANTATION/TRANSPLANTATION METHODS**

(57) Abstract: A production method for producing cell colony forming units *in vitro* from a mammalian tissue explant, the method comprises the steps of a) growing a piece of the mammalian tissue explant in a growth medium to obtain cell colony forming units from immature cells from the piece of explant, and b) harvesting cells from one or more of the cell colony forming units for use in Autologous Cell Implantation/transplantation methods. The mammalian tissue explant is selected from the group consisting of cartilage; bone such as, e.g., bone marrow; connective tissue; muscle tissue such as, e.g., smooth muscle tissue, heart tissue, liver tissue and skeletal muscle tissue; skin tissue such as, e.g., periosteum; mucosal tissue; brain tissue, pancreas tissue and blood vessels. In particular, the mammalian tissue explant is cartilage, such as elastic, fibro, hyalin or articular hyalin cartilage. The cells obtained are suitable for use in autologous implantation/transplantation methods. In a specific embodiment, the cell obtained are chondrocytes, especially for use in autologous chondrocyte implantation (ACI) methods.